REMARKS

Claims 1-91 are pending in the above-captioned patent application after this amendment. Claims 9-11, 25-27, 41-43, 52-54, 60, 61, 71, 72, 80, 87 and 88 are objected to as being dependent upon a rejected base claim, but were found to contain patentable subject matter. Claims 1-8, 12-24, 28-40, 44-51, 55-59, 62-70, 73-79, 81-86 and 89-91 were rejected. The Applicant respectfully traverses the rejection of claims 59, 62-70, 73-79, 81-86 and 89-91 and the objection of claims 60, 61, 71, 72, 80, 87 and 88. Claims 1, 18, 34 and 47 have been amended for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office pursuant to 65 Fed. Reg. 54603 (September 8, 2000), even though the Applicant believes the previously pending claims were allowable.

Support for the amendments to claims 1, 18, 34 and 47 can be found throughout the originally filed application, including the originally filed claims, the drawings and the specification. More specifically, support for the amendments to claims 1, 18, 34 and 47 can be found at least in claims 59-75, in Figures 1A-1C, 2A-2C, 3A-3C, 4A-4C and 7A, and in the specification at page 10, line 32 through page 11, line 3.

No new matter is believed to have been added by this amendment. Consideration of the Application is respectfully requested.

Interview Summary

On December 29, 2003, James Broder, attorney for the Applicant, conducted an interview with the Examiner, Paul Gurzo. During the interview, the language of the independent claims was discussed in view of the cited references. The Examiner agreed that the language of independent claims 59 and 76 would place these claims (and their respective dependent claims) in condition for allowance. Further, the Examiner discussed claim language that would place independent claims 1, 18, 34 and 47 in condition for allowance. These claims have been amended pursuant to the discussion during the interview. Accordingly, claims 1, 18, 34 and 47 (and their respective dependent claims) are believed to be allowable. The Applicant and their attorney wish to thank the Examiner for his time and assistance during the interview.

Rejections Under 35 U.S.C. § 103

Claims 1-8, 12-24, 28-40, 44-51, 55-59, 62-70, 73-79, 81-86 and 89-91 have been rejected under 35 U.S.C. § 103 as being unpatentable over Kojima et al. (US 5,446,722), and further in view of Shamouilian et al. (US 5,592,358) or Fu (US 5,876,576). Claims 1, 18, 34 and 47 have been amended. As amended these claims are believed to be patentable over the cited references.

Kojima et al. is directed toward an information recording apparatus for making replicas of recording media such as optical disks, i.e. copying compact disks and laser disks. (Col. 1, lines 7-10). The information recording apparatus includes a motor 14 that rotates a turn table 4 which carries a master disk. The turn table 4 does not move along any axis, but instead rotates about an axis. Kojima et al. explicitly provides that the motor 14 is enclosed in a magnetic shield means so that an electron beam can irradiate the surface of the master disk mounted on the turn table. (Col. 4, lines 28-34). Importantly, "since the motor 14 is enclosed in the magnetic casing 13, there is no fear that the magnetic fields of the motor 14 affect the electron beam". (Col. 4, lines 38-40; emphasis added). Further, the magnetic casing 13 completely prevents "the magnetic fields of the electric motor 14 from leaking outward." (Col. 4, lines 9-11).

Fu is directed toward a sputtering system 300 for sputtering magnetic target material that includes a magnetron and a magnetic shunt 428. (Col. 4, lines 38-41; Col. 6, line 55 through Col. 7, line 3). The magnetic shunt is positioned where excessive target erosion is expected to avoid a "pinching phenomenon." (Col. 4, lines 46-48; Col. 6, lines 51-54). The pinching phenomenon results in an increase of the erosion rate along the center of a tunnel, which causes a deep spike-like erosion groove in the target. (Col. 3, lines 10-38). Fu teaches a more efficient use of target materials by using the magnetic shunt within a moving magnet sputtering source. (Col. 3, lines 39-50; Col. 4, lines 38-41). Typically, as the target erodes, the magnetic flux above the eroded portion of the target increases. (Col. 6, line 55 through Col. 7, line 7). However, Fu uses a shunt to more efficiently utilize the target, and for sputtering to be more uniform across the target surface. (Col. 7, lines 57-59).

Shamouilian et al. is directed toward an electrostatic chuck 20 and a magnetic shunt 34 that is used to obtain more uniform processing of a substrate 42 held by the

chuck 20 during etching. (Col. 6, lines 25-43). Specifically, the shunt 34 is used to provide a more uniform etch rate across the substrate surface, and more uniform heat transfer from the substrate 42 to a support 44, resulting in more uniform temperatures across the surface of the substrate 42. (Col. 6, lines 25-43). Shamouilian et al. teaches using the shunt to "preferentially concentrate ferromagnetic material toward the periphery of the substrate 42" to promote a more uniform etching of the substrate 42. (Col. 7, lines 19-23).

As provided above, Kojima et al. already completely prevents the magnetic fields of the electric motor from leaking toward the electron beam. Therefore, there is no suggestion in Kojima et al. to add a magnetic shunt taught by Fu or Shamouilian et al. to the recording apparatus of Kojima et al. In fact, the complete prevention of leaking of magnetic fields taught by Kojima et al. suggests the opposite result. That is, there is no clear benefit of combining the cited references, because no such magnetic shunt is necessary due to the fact that there is already no fear that the magnetic fields of the motor will affect the electron beam as taught by Kojima et al. Stated another way, one skilled in the art of recording apparatuses reading Kojima et al. would not be motivated to seek a method for directing magnetic flux with a magnetic shunt during a sputtering or etching process. Consequently, there is no motivation to combine the recording apparatus taught by Kojima et al. with the sputtering or etching processes disclosed in Fu or Shamouilian et al.

In contrast, amended claim 1 is directed toward a "magnetic shunt assembly for an apparatus, the apparatus including an optical assembly, a gap near the optical assembly, a stage, and a mover assembly that moves the stage along an axis in the gap, the mover assembly generating a magnetic field, the magnetic shunt assembly comprising: a first magnetic shunt positioned approximately between the optical assembly and the mover assembly, the first magnetic shunt being made of a magnetic permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." These features are not taught or suggested by the cited references. Therefore, the rejection by the Patent Office of claim 1 would not be supported by the cited references. Because claims 2-17 depend directly or indirectly from claim 1, a rejection of these claims would likewise be unsupported by the cited references.

Amended claim 18 requires "a stage that retains the device; a mover assembly that moves the stage along an axis in the gap, the mover assembly generating a magnetic field; and a first magnetic shunt positioned approximately between the optical assembly and the mover assembly, the first magnetic shunt being spaced apart from the stage, the first magnetic shunt being made of a magnetic permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." These features are not taught or suggested by the cited references. Therefore, the rejection by the Patent Office of claim 18 would not be supported by the cited references. Because claims 19-33 depend directly or indirectly from claim 18, a rejection of these claims would likewise be unsupported by the cited references.

Amended claim 34 is directed toward a "method for reducing stray magnetic fields in a gap of an apparatus, the apparatus including an optical assembly, a stage, and a mover assembly that moves the stage along an axis in the gap, the mover assembly generating a magnetic field, the method comprising the step of: positioning a first magnetic shunt positioned approximately between the optical assembly and the mover assembly, the first magnetic shunt being made of a magnetic permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." These steps are not taught or suggested by the cited references. Therefore, the rejection by the Patent Office of claim 34 would not be supported by the cited references. Because claims 35-46 depend directly or indirectly from claim 34, a rejection of these claims would likewise be unsupported by the cited references.

Amended claim 47 requires the steps of "providing a stage that retains the device; moving the stage along an axis in the gap with a mover assembly, the mover assembly generating a magnetic field; and positioning a first magnetic shunt approximately between the optical assembly and the mover assembly, the first magnetic shunt being spaced apart from the stage, the first magnetic shunt being made of a magnetic permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." These steps are not taught or suggested by the cited references. Therefore, the

rejection by the Patent Office of claim 47 would not be supported by the cited references. Because claims 48-58 depend directly or indirectly from claim 47, a rejection of these claims would likewise be unsupported by the cited references.

Further, the Applicant respectfully traverses the rejection of claims 59, 62-70, 73-79, 81-86 and 89-91 on the grounds that the rejection of these claims is unsupported by the teachings of the cited references. In addition to the description of the references provided above, Kojima does not teach or suggest moving a stage along an axis or between a two optical subassemblies.

In contrast, claim 59 is directed toward a "stage assembly ... comprising: a stage that retains the device; a mover assembly that moves the stage along a first axis in the gap, the mover assembly generating a magnetic field; and a first magnetic shunt positioned near the stage, the first magnetic shunt being fixedly positioned relative to the first axis, the first magnetic shunt being made from a magnetically permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." The rejection of claim 59 is therefore unsupported by the art and should be withdrawn. Because claims 60-75 depend directly or indirectly from claim 59, the rejection of these claims is also unsupported by the art and should be withdrawn.

Claim 76 requires "a stage that retains the device; a mover assembly that moves at least a portion of the stage between the first optical subassembly and the second optical subassembly, the mover assembly generating a magnetic field; and a first magnetic shunt positioned near the stage, the first magnetic shunt being made from a magnetically permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap." The rejection of claim 76 is therefore unsupported by the art and should be withdrawn. Because claims 77-91 depend directly or indirectly from claim 76, the rejection of these claims is also unsupported by the art and should be withdrawn.

Further, the cited combination of references do not provide a motivation or suggestion to combine the features of the cited references. Additionally, the cited references are nonanalogous art and are therefore improper prior art references. Moreover, the cited combination of references does not teach or suggest the features of

many of the rejected claims. Consequently, the Applicant respectfully submits that the rejection of claims 59, 62-70, 73-79, 81-86 and 89-91 should be withdrawn, and that these claims should be allowed.

Claims 59, 62-70, 73-79, 81-86 and 89-91 are patentable over the cited combination of references because as provided below there is no motivation to use either the sputtering system taught by Fu, or the magnetic shunt taught by Shamouilian et al. in the recording apparatus described in Kojima et al. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. In the present case, neither is found.

Even if the combination of references taught every element of the claimed invention (which it does not), without a motivation to combine, a rejection based on a prima facie case of obviousness has been held improper. Further, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In the present case, the prior art does not clearly suggest the desirability of the resultant combination. In the present case, the prior art does not clearly suggest the desirability of the resultant combination.

Moreover, the Patent Office has relied on nonanalogous art in its rejection. The Patent Office states that "722 does not explicitly mention the use of such a magnetic shunt, but 358 and 576 teach a magnetic shunt that attracts the magnetic flux, causing depletion of the magnetic flux above those portions of the substrate, and provides an alternative path for the flux (See 358, col. 4, lines 25-33 and 576, col. 4, lines 48-53). They both teach this magnetic shunt used in conjunction with semiconductor fabrication (See 358, col. 1, line 9, and 576, col. 1, lines 12-18)." The Applicant respectfully disagrees with the analysis of the Patent Office because although Fu and Shamouilian et al. can be used during semiconductor fabrication, the process of semiconductor fabrication taught by Fu and Shamouilian et al. is a completely separate, non-related aspect of such fabrication from that of the present invention. Fu and Shamouilian et al. teach methods used during sputtering and/or etching processes, <u>not</u> during exposure using an optical assembly. Thus, the rejection by the Patent Office under 35 U.S.C. §103(a), which is based on Fu

or Shamouilian et al. is improper because a skilled artisan in the field of exposure apparatuses using stage assemblies would not be expected to search nonanalogous art such as Fu or Shamouilian et al., which involve sputtering and/or etching processes.

Here, the Applicant, seeking to solve the problem of reducing the magnitude of stray magnetic fields near an optical assembly, would not be expected to look to sputtering and/or etching devices and methods for sputtering and/or etching, regardless of whether such processes involve fabrication of semiconductors. Therefore, Fu and Shamouilian et al. are considered to be nonanalogous art, and are not properly cited as references to reject claims 59, 62-70, 73-79, 81-86 and 89-91. As a consequence, the Applicant submit that the rejection of claims 59, 62-70, 73-79, 81-86 and 89-91 under 35 U.S.C. § 103(a) is improper, and that claims 59, 62-70, 73-79, 81-86 and 89-91 are in condition for allowance.

Allowable Subject Matter

Claims 9-11, 25-27, 41-43, 52-54, 60-61, 71-72, 80 and 87-88 would be allowable, but are objected to as being dependent on rejected base claims.

Conclusion

In conclusion, the Applicant respectfully asserts that claims 1-91 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-456-1951 for any reason that would advance the instant application to issue.

Dated this the 29th day of January, 2004.

Respectfully submitted,

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